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EXAMINER

CHEN, WENPENG

ART UNIT	PAPER NUMBER
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2624

DATE MAILED: 05/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/939,066

Applicant(s)

MITCHELL ET AL.

Examiner

Wenpeng Chen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 March 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-39 and 41 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-39, 41 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Examiner's responses to Applicant's remark

1. Applicants' arguments filed on 3/23/2006 have been fully considered.
2. The arguments overcome the followings set forth in paper#20051216 mailed on 12/23/2005:

-- the rejection to Claim 41 under 35 U.S.C. 101.
3. Applicant's arguments with respect to art rejections to all the pending claims have been considered but are moot in view of the new ground(s) of rejection due to the new amendment. The Examiner has thoroughly reviewed Applicants' arguments but firmly believes that the cited reference to reasonably and properly meet even all the features including the newly added limitation as explained below in the rejection sections.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

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5. Claims 1-4, 11-12, and 14-19, 30-36, 38-39, and 41 are rejected under 35 U.S.C. 102(e) as being anticipated by Keller et al. (US patent application publication 2002/0102028 cited previously.)

a. For Claims 1-4, 11-12, and 14-19, Keller teaches a method for managing an image of an object stored in a database, the method comprising the steps of:

-- reducing a storage size of the image from a base level to at least one secondary level based on the reduction criteria, wherein each secondary level is smaller in storage size than the base level; (sections 0061-0065, 0077, 0092; See the explanation provided in the previous Action with regard to the step of evaluation.)

-- wherein the step of reducing includes replacing the image with a size-reduced image version, **such that the size-reduced image version is the only version of the image stored in the database;** (citation A: paragraph 0061, especially the last 8 lines; The passage explains that the original image is reversibly compressed and is replaced by the reversibly-compressed image. A reversibly compressed image has smaller size of data than the original image and is thus a size-reduced image version. Data S1 and S2 are also compressed. *The reversibly-compressed image, image data S1, and S2 are all of a size-reduced image version. In one species of the embodiment, only the reversibly-compressed image, image data S1, and S2 are stored in storage medium 11. The data stored in medium 11 form a set of database.* Therefore, Keller also teaches the newly added limitation -- the size-reduced image version is the only version of the image stored in the database.)

-- repeating the step of reducing to reduce the storage size of the **size-reduced** image from one secondary level to another secondary level based on the reduction criteria; (sections

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0061-0065, 0071, 0078-0091; The server computer 13 creates at least two versions of secondary-level images. The compression is repeated at least twice. **In the situation that reversibly compressed image replaces an original image, the further reduction in data size is done as compared with the reversibly compressed image.)**

-- wherein the step of repeating occurs after expiration of a predetermined duration; (sections 0061-0065, 0070-0071; The reducing process includes a process of deleting the original image data S org from temporary medium 11 after a predetermined period and storing only S1 and S2. This is a storage-size reduction process.)

-- wherein the image is of a document; (section 0055; The images are medical images that are medical documents.)

-- wherein the image includes a plurality of images; (section 0092)

-- wherein the step of reducing includes compressing the image; (section 0061)

-- wherein an initial step of reducing includes deleting a portion of the image; (section 0061; Because S1 image is irreversibly compressed, portion of image data is deleted.)

-- wherein the reduction criteria includes at least one of: available data storage, time since object creation, time since object imaging, prior size reduction, prior access by user, object value, user account type, volume of objects per user account, user total account value, a user selection, user fees paid, user account history, suspicious activity and object part imaged; (sections 0084-0091; The size-reduction criteria includes information of the doctor or group of doctors using the images that is information of user selection.)

-- maintaining a copy of image at the base level; (section 0061 and claim 1; The original image is stored.)

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-- replacing the image at the secondary level with a copy of the image at the base level when a user requests access to the copy of the image at the base level; (section 0080-0081; When a base-level image is requested, image data are progressively decompressed. In the decompressed process, the image at the last secondary level is replaced with the image at the base level.)

-- wherein the user includes an indication of the duration that the base level will be required when the user requests the copy of the image at the base level; (section 0071)

-- wherein a final step of reducing includes purging the image. (section 0071; At the end of a predetermined period, the original image data are deleted (purged).))

b. For Claims 30-36 and 38, Keller teaches a system for managing storage size of an image of an object where the image is accessed by a user online (Fig. 1), the system comprising:

-- a size-reduction evaluator to periodically evaluate whether the image is subject to a size reduction based on size-reduction criteria; (sections 0061-0065, 0071; The server 1 evaluates each input image and bases on at least criteria set forth in sections 0064 and 0071 to decide compression ratio and storage both influence the total image data size to be stored. The part of the server performing the evaluation is the evaluator. sections 0063-0064, 0077, 0092; Section 0064 teaches that "Accordingly, depending on the input modality 4 by which original image data *S_{org}* was obtained, the part on which an examination was conducted or the method of examination, the compression ratio of irreversible compressed image data can be changed." Section 0092 further teaches that "Further, for cases in which image quality parameters and/or usage purpose parameters have been assigned to image data *S*, *the version of the data group to*

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be acquired *can be specified according to* the image quality parameter and/or usage purpose parameter.")

-- a size reducer to reduce the size of the image based on instructions from the size-reduction evaluator and to replace the image with a size-reduced image version, **such that the size-reduced image version is the only version of the image stored in the database;** (sections 0061-0065; The server 1 evaluates each input image and bases on at least criteria set forth in section 0064 to decide compression ratio. The part of the server performing the compression is the size reducer. **The passage, in paragraph 0061, especially the last 8 lines, explains that the original image is reversibly compressed and is replaced by the reversibly compressed image. A reversibly compressed image has smaller size of data than the original image and is thus a size-reduced image version. Also see citation A above.)**

-- a designator to assign the image a designation indicative of the status of the image based on the size-reduction criteria; (sections 0065-0066; At least there are three versions. The part of the server labeling the version is the designator.)

-- wherein the size-reduction criteria includes at least one of: prior size-reduction, prior access by user, object value, user account type, volume of objects in user account, user total account value, a user selection, user fee paid, user account history and object side imaged; (sections 0084-0091; The size-reduction criteria includes information of the doctor or group of doctors using the images that is information of user selection.)

-- wherein the size-reduction criteria includes real-time factors including at least one of: available data storage, suspicious activity, time since object creation and time since object imaging; (sections 0071, 0084-0091; The size-reduction criteria includes information of memory

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size of the computer that is information of available data storage. The image data S is deleted after a predetermined period of time.)

-- a storage module to save a substantially lossless quality version of the image; (section 0061; Both original image data S org and reversible-compressed image data of S can be stored. Both have lossless quality.)

-- wherein the size-reduction evaluator determines whether to leave the image alone, reduce the storage size of the image or purge the image; (sections 0061-0065, 0071; claim 1)

-- wherein a first activation of the size reducer purges an image portion of the image; (sections 0061-0065, 0071; The irreversible compression deletes portions of image data thus purging an image portion of the image.)

-- wherein the size-reduction evaluator determines a reduction/purging rule to be followed by the size reducer based on the reduction criteria. (sections 0061-0065, 0071; See explanation above.)

c. The above-cited passages also teach the system of Claim 39.

d. With regard to Claim 41, Keller teaches that server computer 13 performs all the above-cited functions. Server computer 13 inherently comprises a computer readable medium having computer readable program code embodied therein to carry out the above-cited functions. Therefore, Keller also teaches Claim 41.

Claim Rejections - 35 USC § 103

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6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 21-23 and 25-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Keller et al. (US patent application publication 2002/0102028) in view of Morris et al. (US patent 5,153,936 cited previously.)

As discussed above with regard to Claims 1-4, 11-12, and 14-19, 30-36, and 38-40, Keller teaches a method and system of managing storage size of an image of an object, wherein the image is accessed by a user, the method comprising the steps of:

- reducing the storage size of the image based on reduction criteria to create a size-reduced version, the size-reduced version replacing the image;
- wherein the step of reducing includes compressing the image;
- wherein the image is in a compressed format and the step of reducing includes achieving more compression;
- wherein an initial step of reducing includes deleting a portion of the image;
- wherein the reduction criteria includes at least one of: available data storage, time since object creation, time since object imaging, prior size-reduction, prior access by user, object value, user account type, volume of objects per user account, user total account value, user selections, user fees paid, user account history, suspicious activity and object side imaged;
- maintaining a substantially lossless quality version of the image;

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- allowing the user to access the substantially lossless quality version upon request;
- wherein a final step of reducing includes purging the image.

Keller teaches that the method further comprises:

- allowing user access to the original image data from the high readout-speed capable storage medium for a predetermined duration, wherein (1) when the original image data are required, the original image data are copied from archive to temporary storage medium 11 and (2) in one situation, the original image is converted to a reversibly-compressed image version as taught in 0061. (sections 0060-0061 and 0070-0072)

However, Keller does not explicitly teach the steps of allowing and repeating recited in Claim 21.

Morris teaches:

- allowing user access to a size-reduced version for a predetermined duration; (column 7, lines 11-50)
- repeating steps of reducing and allowing after expiration of the predetermined duration. (column 9, lines 37-53)

It is desirable to release memory of high readout-speed capable storage medium for storing new data in high readout-speed capable storage medium by deleting data that have not been generated for an aging period. It would have been obvious to one of ordinary skill in the art, at the time of the invention, to apply Morris' teaching to delete Keller's image data S1 and S2 from the high readout-speed capable storage medium and regenerate the S1 and S2 upon request after the predetermined period, because the combination makes better use of the high readout-speed capable storage medium. The combination thus teaches the steps of:

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-- allowing user access to the size-reduced version for a predetermined duration;
-- repeating the steps of reducing and allowing after expiration of the predetermined duration, wherein each reduction replaces a previous size-reduced version. (The combination teaches that after a predetermined duration the image data stored in the temporary storage medium 11 are deleted as taught by Keller in sections 0070-0072, wherein (1) when the original image data are required again later as taught by Morris, the original image data are copied from archive to temporary storage medium 11 as taught by Keller and (2) in one situation, the original image is converted to a reversibly-compressed and irreversibly-compressed image versions as taught in 0061 as taught by Keller in sections 0060-0061. It is evidently after each selection and new request, a set of new image data versions replace their corresponding deleted versions.)

8. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Keller et al. (US patent application publication 2002/0102028) applied to Claim 1 as discussed above, and further in view of Ishida (Japanese patent JP 09181892 A in IDS filed on 8/24/2001.)

Keller teaches the parent Claim 1 as discussed above. However, Keller does not teach the feature related to statistical data recited in Claim 20.

Ishida teaches a document storage and retrieval system and method, comprising:

-- maintaining statistical data for comparison with a criterion for compressing image data. (Figs. 3-4 and the attached English summary; The data are discriminated to be whether frequently used or not. This discrimination inherently needs statistical data of the number of usage.)

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It is desirable to speed up image retrieval and display. It would have been obvious to one of ordinary skill in the art, at the time of the invention, to apply Ishida's teaching to maintain statistical data of the number of usage of Keller's image as a criterion for deciding data reduction, because the combination speeds up image retrieval and display of frequently-used images. The combination thus teaches the step of:

-- maintaining statistical data for comparison with the reduction criteria.

9. Claims 5-6 and 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Keller et al. (US patent application publication 2002/0102028) applied to Claim 1 as discussed above, and further in view of Takayama (US patent 5,970,176 cited previously.)

Keller teaches the parent Claim 1 as discussed above. Keller further teaches:

-- wherein the compressed format is a JPEG baseline compression format; (section 0029; JPEG and progressively expandable compression are used in different embodiments. Therefore, one approach uses a JPEG baseline compression format.)

-- wherein a first secondary level exhibits lower image quality compared to the base level and a second secondary level exhibits lower image quality compared to the first secondary level; (sections 0061-0065)

-- wherein the at least two secondary levels includes at least three secondary levels; and a third secondary level exhibits lower image quality compared to the second secondary level. (section 0061; claim 1; There are uncompressed original image data, reversible compressed image data and S1 and S2 irreversible compressed image data. Quality of S2 is lower than that of S1.)

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However, Keller does not teach the feature related to different Q-tables recited in the listed claims.

Takayama teaches a method and system for generating image data of various compressed levels for network communication, comprising:

- using JPEG compression; (Fig. 4)

- wherein a base level is a compressed format and each secondary level has a different Q-table than the base level and the at least one secondary level includes at least two secondary levels, each secondary level having a different Q-table than every other secondary level. (column 3, lines 25-63; Fig. 6A1; Three Q-tables that are fine, standard, and course are used for various compression levels.)

It is desirable to have flexibility of generating image data of various compression levels. It would have been obvious to one of ordinary skill in the art, at the time of the invention, to apply Takayama's teaching to quantize Keller's image with different Q-tables for generating image data of various levels, because the combination provides flexibility of generating image data of various compression levels.

10. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Keller et al. (US patent application publication 2002/0102028) and Takayama (US patent 5,970,176) applied to Claim 5 as discussed above, and further in view of Sato et al. (US patent application publication 20020003905 cited previously.)

The combination of Keller and Takayama teaches the parent Claim 5 as discussed above.

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However, the combination does not teach the feature related to JPEG2000 recited in the listed claim.

Sato teaches image compression for file management comprising the feature:

-- wherein the compressed format is a JPEG 2000 compression format. (sections 82 and 245)

It is desirable to have flexibility of controlling, transmitting, and displaying compressed image data over various systems. It is well known JPEG 2000 compression provides such flexibility. It would have been obvious to one of ordinary skill in the art, at the time of the invention, to extend Sato's JPEG2000 compression to compress Keller's image, because the combination provides the above-stated flexibility.

11. Claims 13 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Keller et al. (US patent application publication 2002/0102028) applied to Claims 1 and 30 as discussed above, and further in view of Takayama (US patent 5,970,176) and Christopoulos et al. (US patent 6,526,099 cited previously.)

Keller teaches the parent Claims 1 and 30 as discussed above.

However, Keller does not teach the feature related to decoding compressed data, Q-tables, and recoding recited in the listed claims.

Takayama teaches selecting various Q-tables as discussed above. The advantage of combining Keller's and Takayama's teachings is also provided above.

However, the combination of Keller and Takayama does not teach the feature related to decoding compressed data and recoding recited in the listed claims.

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Christopoulos teaches transcoding of compressed image data comprising the feature:

-- wherein the image is in a compressed format and the step of reducing includes entropy decoding the image, changing quantized coefficients and quantization tables, and entropy recoding the image. (Fig. 1; column 16, lines 31-52; VLD in Fig. 1 is entropy decoding. VLC₄ in Fig. 1 is entropy recoding. Quantization is change from Q₁ to Q₂,

It is desirable to be able to reprocess existed compressed medical image for improving image retrieval. It would have been obvious to one of ordinary skill in the art, at the time of the invention, to extend Christopoulos' transcoding approach to recompress images in the system and method taught by the combination of Keller and Takayama, because the combination improves image retrieval.

12. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Keller and Morris applied to Claim 23 as discussed above, and further in view of Takayama (US patent 5,970,176) and Christopoulos et al. (US patent 6526099.)

The combination of Keller and Morris teaches the parent Claim 23 as discussed above.

However, the combination does not teach the feature related to decoding compressed data, Q-tables, and recoding recited in the listed claim.

Takayama teaches selecting various Q-tables as discussed above. The advantage of combining Keller's and Takayama's teachings is also provided above. Similar combination and advantage are also applied to the combination of Keller, Morris, and Takayama.

However, the combination of Keller, Morris, and Takayama does not teach the feature related to decoding compressed data and recoding recited in the listed claims.

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Christopoulos teaches transcoding of compressed image data comprising the feature:

-- wherein the image is in a compressed format and the step of reducing includes entropy decoding the image, changing quantized coefficients and quantization tables, and entropy recoding the image. (Fig. 1; column 16, lines 31-52; VLD in Fig. 1 is entropy decoding. VLC₄ in Fig. 1 is entropy recoding. Quantization is change from Q₁ to Q₂,

It is desirable to be able to reprocess existed compressed medical image for improving image retrieval. It would have been obvious to one of ordinary skill in the art, at the time of the invention, to extend Christopoulos' transcoding approach to recompress images in the system and method taught by the combination of Keller, Morris, and Takayama, because the combination improves image retrieval.

Conclusion

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

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however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wenpeng Chen whose telephone number is 571-272-7431. The examiner can normally be reached on 8:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Bella can be reached on 571-272-7778. The fax phone numbers for the organization where this application or proceeding is assigned are 571-273-8300 for regular communications and 571-273-8300 for After Final communications. TC 2600's customer service number is 571-272-2600.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 571-272-2600.

Wenpeng Chen
Primary Examiner
Art Unit 2624

May 22, 2006

